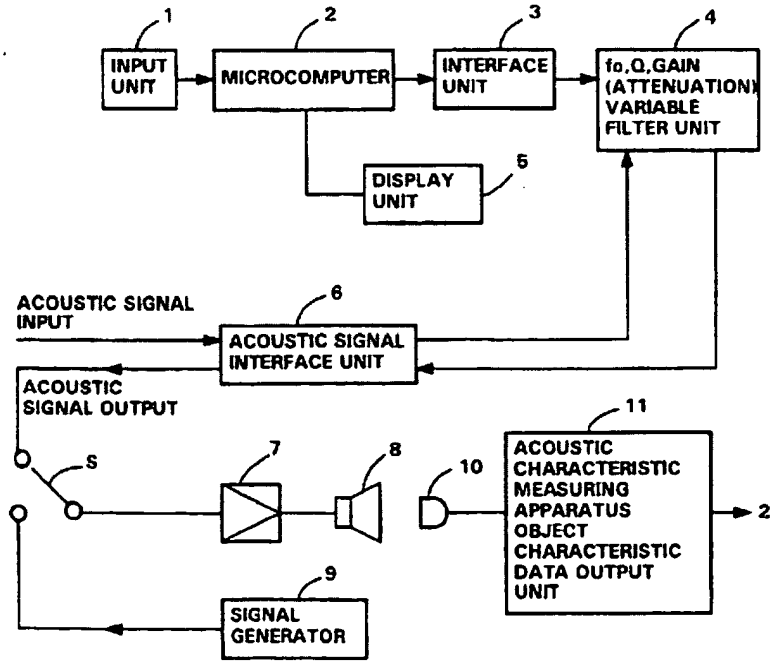
REMARKS/ARGUMENTS

The Examiner has rejected claims 1, 4-5, 7-11, 18, and 22-26 under 35 U.S.C. 103(a) as being unpatentable over Sato (US 5,541,866).

Sato discloses a device for correcting frequency characteristics of a sound field (Title). The device is essentially a graphic equalizer. Sato teaches that properly setting the center frequency, peak factor and gain parameters requires great skill because each adjustment of one parameter interferes with the other parameters. Therefore, Sato teaches a graphic equalizer that approximates some of the frequency parameters in order to reduce the skill required of a user to properly set an equalizer and obtain quality sound output (col. 1, lines 39-45).

Fig. 1 shows a block diagram of an equalizer according to Sato described in detail at column 3 starting at line 38. The equalizer includes an input unit 1 provided to a user for setting desired frequency characteristics of the equalizer by entering the gains at specific frequency points as illustrated in Fig. 9 below.

FIG. 1



In the example provided by Sato a user manually inputs a gain value for each of the frequency bands that are used to form the equalizer. It should be noted that in this example, the equalizer is formed of n = 9 frequency bands.

FIG. 9

FREQUENCY (Hz)	GAIN [dB]
60	8
120	2
250	6
500	4
750	4
1K	4
4K	7
8K	7
16K	7

The Examiner contends that Sato discloses a method for approximating an n-band graphic equalizer having n-band graphic equalizer settings associated with a media item using not more than m predetermined filter types, as recited by claim 1 of the invention. However, Sato explicitly states that "The center frequencies, gains and peak factors of several filters are **not fixed but properly determined by using the algorithm of the present invention**" (col. 1, lines 65-67, emphasis added). Since the filters in question are not fixed, but determined by the algorithm of Sato, they cannot be predetermined as required by claim 1. In particular claim 1 recites:

A method for approximating an n-band graphic equalizer having n-band graphic equalizer settings associated with a media item using not more than *m predetermined filter types,* wherein each filter type is characterized as having a known frequency response shape, where m is less than n, said method comprising:

(a) classifying the n-band graphic equalizer settings by comparing a composite frequency response shape representing the n-band graphic equalizer settings with at least a portion of the frequency response shape of one or more of a plurality of predetermined filter types;

(b) *determining parameters for the one or more of the predetermined filter types used to classify the equalizer settings*;

(c) assigning a priority to each of the one or more predetermined filter types used in the classification wherein the assigned priority is based on weighting values associated with each of the one or more predetermined filter types; and

(d) selecting no more than m predetermined filter types having the highest priority.

Therefore, since Sato specifically requires that filters are not fixed but are based upon inputs provided by the user (i.e., the center frequencies, gains, and peak factors and so on) and are therefore not known until the user provides the appropriate input information. In contrast, claim 1 specifically teaches that the predetermined filter types have a known frequency response shape. Therefore, Applicants respectfully submit that claim 1 is not taught nor suggested by claim 1.

The Examiner contends that Sato discloses: (a) classifying the n-band graphic equalizer settings by comparing a composite frequency response shape representing the n-band graphic equalizer settings with at least a portion of the frequency response shape of one or more of the predetermined filter types, as recited in claim 1. The Examiner cites col. 2, lines 1-13 and col. 4, lines 10-23 as disclosing this. However, after a careful review of these sections, Applicant cannot determine what could possibly be a composite frequency response shape representing the n-band graphic equalizer settings. Sato does not teach or suggest using a composite frequency response shape representing the n-band graphic equalizer settings. In the cited section, Sato discloses an overview of a process whereby all n filters are set to 0dB and then one by one each filter has its center frequency selected and then its gain and peak factor estimated (col.4, lines 10-23).

The Examiner contends that Sato discloses: (d) selecting no more than m predetermined filter types having the highest priority. The Examiner cites col. 4, lines 19-21 as supporting that contention. That section of Sato recites selecting one filter during the processing of the first of n bands to be processed. The procedure of Sato continues as long as there are bands left to process and filters to set as shown at steps S6, S7 and S13 of figures 2, 3 and 4 included below.

FIG.2

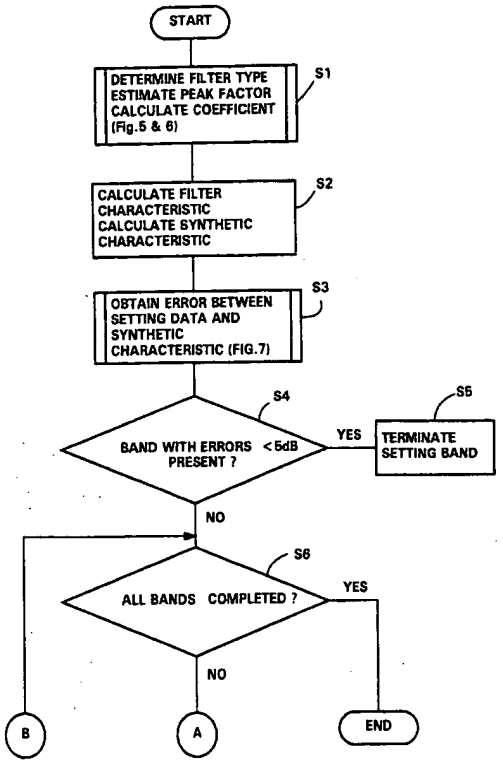

START
DETERMINE FILTER TYPE
ESTIMATE PEAK FACTOR
CALCULATE COEFFICIENT
(Fig.5 & 6)
S1
CALCULATE FILTER
CHARACTERISTIC
CALCULATE SYNTHETIC
CHARACTERISTIC
S2
OBTAIN ERROR BETWEEN
SETTING DATA AND
SYNTHETIC
CHARACTERISTIC (FIG.7)
S3
S4
BAND WITH ERRORS <5dB
PRESENT ?
YES
S5
TERMINATE
SETTING BAND
NO
S6
ALL BANDS COMPLETED ?
YES
NO
B
A
END

FIG.3

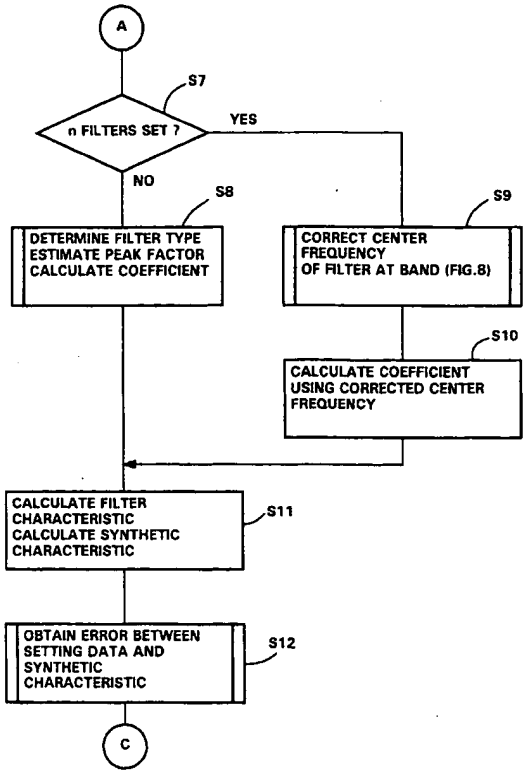
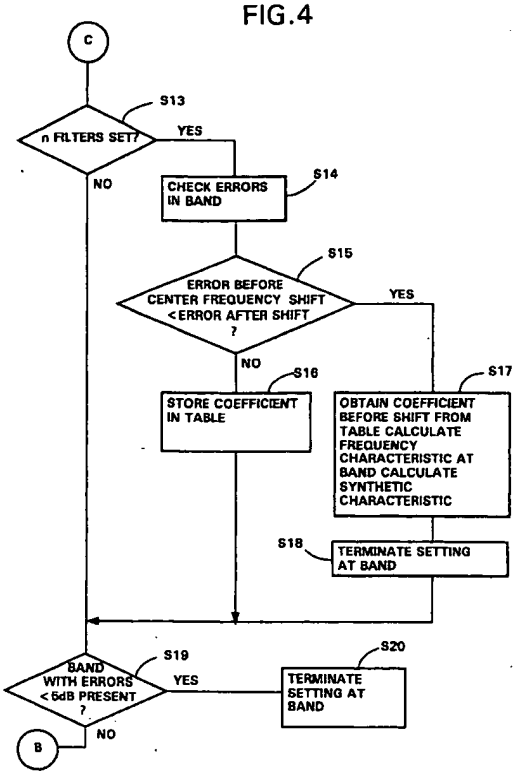
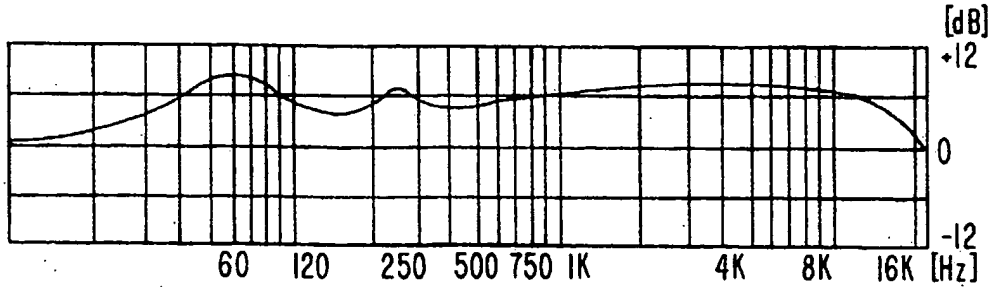

A
S7
n FILTERS SET ?
YES
NO
S8
DETERMINE FILTER TYPE
ESTIMATE PEAK FACTOR
CALCULATE COEFFICIENT
S9
CORRECT CENTER
FREQUENCY
OF FILTER AT BAND (FIG.8)
S10
CALCULATE COEFFICIENT
USING CORRECTED CENTER
FREQUENCY
CALCULATE FILTER
CHARACTERISTIC
CALCULATE SYNTHETIC
CHARACTERISTIC
S11
OBTAIN ERROR BETWEEN
SETTING DATA AND
SYNTHETIC
CHARACTERISTIC
S12
C

FIG.4



It should be noted that once the user has established the number of frequency bands (for example in figure 9, n = 9), Sato never uses fewer than the established number of frequency bands (which in this example is 9) to form the equalizer. This can be shown, for example, in Figs. 30 – 38 as well as Fig. 14 below where a total of n= 9 frequency bands are shown. Therefore, in contrast to the invention recited in at least claim 1, Sato does not teach nor suggest approximating an n band equalizer using fewer than n filters.

FIG. 14



To summarize, the reference starts with n settings to build an n-band graphic equalizer and continues to use n filters throughout. However, claim 1 of the invention starts with an n-band graphic equalizer and approximates that with only m filters where m is less than n.

Additionally, as stated above, Sato does not disclose predetermined filter types, since all of the filters discussed are calculated by the algorithm considered the invention of Sato and are not predetermined.

Based, at least, on these significant differences between the invention and Sato, Applicant respectfully submits that claim 1 is patentably distinct from Sato. Independent claims 18 and 23 recite similar limitations to those of claim 1 discussed above. For at least the same reasons as those given above with respect to claim 1, Applicant respectfully submits that claims 18 and 23 are patentably distinct from Sato. Dependent claims 4-5, 7-11, 22, and 24-26 depend, either directly or indirectly on independent claims 1, 18 or 23 and merely add limitations that further distinguish the invention from Sato. For at least the same reasons as given above for their independent claims, Applicants respectfully submit that dependent claims 4-5, 7-11, 22, and 24-26 are patentably distinct from Sato.

The Examiner has rejected claims 13-16 under 35 U.S.C. 103(a) as being unpatentable over Yoshino (2004/0071299) in view of Wiser et al (US 7,016,746).

The Examiner cites paragraph 61, lines 2-8 of Yoshino as teaching the following sections from claim 13 of the invention:

> (c) examining the equalizer setting values other than the first set for approximate correlation to at least a portion of a frequency response of a parametric type filter;
>
> (d) selecting the parametric type filter if a second set of the equalizer settings approximately correlate;

However, after careful review of paragraph 61 (included below), Applicant cannot see how this teaches the above elements (c) and (d). Specifically, there is no mention of examining equalizer settings for approximate correlation to at least a portion of a frequency response, nor is there any mention of selecting a parametric type filter if a second set of equalizer settings approximately correlate. Nor can these elements be found elsewhere in Yoshino.

[0061] In the present embodiment, by way of example, the frequency components of an audio signal is divided into ten frequency bands each of which central frequencies are 31.5 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, and 16 kHz. Among those ten frequency bands, a frequency band of which central frequency is 1 kHz is designated as a "fixed-level band," while the remaining frequency bands are designated as "variable-level bands."

Applicant respectfully submits that Yoshino does not teach at least elements (c) and (d) of claim 13. Since Wiser does not remedy this defect in Yoshino, Applicant respectfully submits that claim 13 is patentably distinct from Yoshino in view of Wiser. Dependent claims 14-16 depend on claim 13 and merely add limitations that further distinguish them from the cited references. Therefore, Applicants respectfully submit that dependent claims 14-16 are patentably distinct from Yoshino in view of Wiser for at least the reasons given above for claim 13.

The Examiner has rejected claims 27-29 under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Hall et al. (2005/0069153). The Examiner contends that Sato discloses a media device, comprising: a data store for storing media data received from a computer, the media data including **media content** and equalizer setting information for at least one media item.

However, nowhere does Sato disclose a data store for storing **media content**. Sato relates to analyzing the user input equalizer settings, in part by a microcomputer. Sato does disclose a microcomputer receiving and storing equalizer data and calculating parameters therefrom (col. 3, lines 44-49), however no mention is made of storing the media content itself.

The reasons cited above with respect to how claim 1 is distinct from Sato would also apply to claim 27. For at least these reasons, Applicant respectfully submits that claim 27 is patentably distinct from Sato in view of Hall. Dependent claims 28-29 depend on claim 27 and merely add limitations that further distinguish them from the cited art. Therefore, Applicant respectfully submits that claims 28-29 are patentably distinct from Sato in view of Hall.

Conclusion

In view of the foregoing, it is believed that all pending claims are allowable and applicants respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Should any fee be required for any reason related to this document, the Commissioner is hereby authorized to charge said fee to Deposit Account No. 504481, referencing Docket No. APL1P306.

Respectfully submitted,
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